PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Restore Riparian And Anadromous Fish Habitat In The Upper Sandy Basin

BPA project number: 20125
Contract renewal date (mm/yyyy): ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Mt. Hood National Forest, Zigzag Ranger District

Business acronym (if appropriate) MTHNF

Proposal contact person or principal investigator:

Name	Jeff Uebel
Mailing Address	Zigzag Ranger District, 70220 E Hwy 26
City, ST Zip	Zigzag, OR 97049
Phone	(503) 622-3191 680
Fax	(503) 622-5622
Email address	juebel/r6pnw_mthood@fs.fed.us

NPPC Program Measure Number(s) which this project addresses
7.7 Cooperative Habitat Protection and Improvement with Private Landowners
7.7A Coordination of Watershed Activities
7.7A.1-6
7.8 Water Availibility
7.10K Passage into Historic Habitat
7.6 Habitat Goal, Policies and Objectives

FWS/NMFS Biological Opinion Number(s) which this project addresses
N/A

Other planning document references
Land and Resource Management Plan (Mt. Hood National Forest), 1990.
Record of Decision for Ammendments to Forest Service and Bureau of Land Management Planning Documents ….Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Fores Related Species within..” (Northwest Forest Plan), “Aquatic Conservation Strategy”, B-11 no.2, 1994.
Sandy River Basin Fish Management Plan, “Habitat Management Objectives”, C-38 and C-39 : 2.1,1997.

Short description
This project aims to recruit and guide private land owners in developing/implementing in-stream and riparian restoration projects benefitting Lower Columbia River salmonid species and wildlife populations and complementing work on National Forest Lands.

Target species
LCR coho salmon, steelhead, cutthroat, fall and spring chinook.

Section 2. Sorting and evaluation

Subbasin
Lower Columbia - Sandy River Subbasin

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☐ Multi-year (milestone-based evaluation) ☒ Watershed project evaluation	☒ Watershed councils/model watersheds ☒ Information dissemination ☐ Operation & maintenance ☒ New construction ☐ Research & monitoring ☒ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
	RiverKeeper: Partnership w/landowners to improve fish and wildlife habitat	Forest Service pilot project
	Sandy River Basin BPA Powerline Right of Way Management.	Watershed restoration plan for BPA powerline area (currently being implemented)

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1996	Initiated Sandy RiverKeeper Program to promote stream stewardship on private land	Yes. Improved habitat and promote stewardship.
1996	Restored 0.5 miles side channel habitat for coho and steelhead habitat	Yes. Improved habitat and promote stewardship.
1997	Accessed 0.5 mile high quality coho and steelhead habitat through installation of two	Yes. Improved habitat and promote stewardship.

	fishways on two dams	
1997	Improved 0.5 mile steelhead/coho habitat through installation of 50 log/boulder structures and riparian plantings	Yes. Improved habitat and promote stewardship.
1998	Constructed 0.25 mile new meandering channel for channelized tributary on private golf course and added two new rearing ponds	Yes. Improved habitat and promote stewardship.
1998	Started planning for 0.5 mile stream rehabilitation including fish passage, riparian planting, side channel improvements, and wetland creation.	In progress

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Contact, inform, and recruit land owners with key habitat on mainstem rivers and tributaries in the Upper Sandy River system.	a	Identify key habitats and associated land owners from ODFW plan and aerial photo recon.
		b	Annually contact at least 100 land holders with information on stream stewardship and overview of improvement opportunities.
		c	Site visits to identify specific opportunities on properties owned by interested land holders (at least 30/year).
		d	Coordinate/present three public workshops (1/year) for upper Sandy Basin landholders. Workshop will address streamside stewardship, watershed restoration and stream habitat improvement.
2	Assist at least 3 interested landowners in planning and implementing watershed/stream habitat restoration projects	a	Plan at least 10 projects and implement at least 3/year.
		b	Offer assistance in: design services, material aquisition, contract preparation/procurement/administration, volunteer recruitment, coordination, management, additional technical or financial assistance, monitoring, evaluation, and project re-assessment.
3	Monitor and evaluate more than 3 projects annually and prepare annual reports detailing results	a	Perform pre/post project monitoring elements such as temeperature, photo-points, site mapping, aquatic algal community assessment, macroinvertebrate and water quality sampling

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/2000	9/2003	30 or more landowners recruited for habitat improvements, annually		30.00%

2	10/2000	9/2003	Annually, plan 10 or more in-stream/riparian restoration projects		40.00%
3	10/2000	9/2003	Annually,restore and monitor 3 or more project sites		30.00%
				Total	100.00%

Schedule constraints
For in-stream projects, fill permits (ACOE/DSL) may be required and/or Environmental Analysis performed. This may delay implementation of these projects for one year. However, riparian improvement projects should not have any constraints.

Completion date
Final report will be submitted 9/2004

Section 5. Budget

FY99 project budget (BPA obligated):

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	Project leader, manager, and seasonal crew	%43	56,000
Fringe benefits			0
Supplies, materials, non-expendable property	Approx 5,000 per project implemented	%11	9,000
Operations & maintenance			0
Capital acquisitions or improvements (e.g. land, buildings, major equip.)			0
NEPA costs	Forest Service (force account), five person IDT	%23	15,000
Construction-related support	Heavy equipment contract for in-channel work, 1 project	%7	5,000
PIT tags	# of tags: 0		0
Travel			0
Indirect costs	15% of project costs	%13	12,750
Subcontractor			0
Other			0
		TOTAL BPA FY2000 BUDGET REQUEST	$97,750

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
USFS-MHNF	Existing RiverKeep Program		1,500
ODFW	STEP bio support		16,000
Wolftree, Inc.	Vol. coord/prof services		2,000
GWEB (plus other grant	Average annual project support		20,000

programs)			
Private Landowners	Average annual cash support		10,000
		Total project cost (including BPA portion)	$147,250

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$147,250	$147,250	$147,250	

Section 6. References

Watershed?	Reference
☐	Feduk, M.D. 1997. Application of River Spur Design Methods to Watershed Restoration Projects. 2nd Annual US-BC Watershed Restoration Technical Transfer Workshop.
☐	Land and Resource Management Plan. 1990. USDA-Forest Service. Mt. Hood National Forest, Sandy, OR 97055.
☒	NR-20. Stream and Watershed Restoration Design and Implementation Workshop. 1998. USDA-Forest Service. Mt. Hood National Forest. Hood River, OR.
☒	Record of Decision for Ammendments to Forest Service and Bureau of Land Management Planning Documents ….Standards and Guidelines for Management of Habitat for Late-Successional and... 1994. USDA-Forest Service. Mt. Hood National Forest, Sandy, OR 97055.
☒	Murtagh, T., J. Massey, and D. Bennett. 1997. Sandy River Basin Fish Management Plan. ODFW, Portland, OR, 97207.
☒	Robison, E. G. and R.L. Bescheta. 1990. Identifying Trees in Riparian Areas that Can Provide Coarse Woody Debris to Streams. Forest Science 36:3:790-801.
☒	Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, CO.
☒	Salmon River Watershed Analysis. 1995. USDA-Forest Service. Mt. Hood National Forest, Sandy, OR, 97055
☒	Slaney, P.A. and D. Zaldokas. 1997. Fish Habitat Rehabilitation Procedures. Watershed Restoration Program. Vancouver, BC., Canada, IZ4
☒	Thom, B. and A. Talabere. 1998. Guide to In-stream and Riparian Restoration Sites and Site Selection. p. 15. ODFW, Portland, OR, 97207.
☒	Upper Sandy Watershed Anaysis. 1996. USDA-Forest Service. Mt. Hood National Forest, Sandy, OR 97055

PART II - NARRATIVE

Section 7. Abstract

The Mt. Hood National Forest has been analyzing, improving, and managing the National Forest through many watershed analysis and implementation plans to protect, improve, and restore the habitats for fish wildlife. Within the federal lands, which are in the upper reaches of the Sandy River basins, are considered very good habitat to improve fish and wildlife stocks. However, the lower reaches of the watershed basin are publicly owned and good opportunities to restore fish habitat and improve fish passage that may increase fish stocks in the upper basin. The RiverKeeper, a partnership program with private land owners, is aimed to assist interested landowners to restore and improve their lands to benefit the fish stocks, passage, habitat, connectivity of riparian reserves in the watershed. This program will improve the connectivity of riparian reserves, a key element for habitat improvements for fish and wildlife. It entails identifying key habitats in private lands, contacting to participate in the program, educating, and assisting

the land owners for habitat improvements. The U.S. Forest guidelines for stream and habitat restoration will be used to conduct the site assessment and implementation of each project. Aerial photographs will be taken; assessing the site, coordinating and planning instream and habitat designs will be made; and implementing, monitoring, and evaluating the project design will be studied. Within the three years, the program expects to improve the fish passage, habitat, stocks in the private lands by improving the connectivity of riparian reserves from the National Forest to private lands. The water quality, temperature, aquatic algal community assessment, and macroinvertebrate as well as yearly point shots of each project sites will be monitored and evaluated.

Section 8. Project description

a. Technical and/or scientific background

The Sandy River basin is approximately 500 square miles. The lower half of the river is dominated by agricultural and urban/suburban land uses. Marmot Dam, a small hydroelectric facility operated by Portland General Electric (PGE) is located at river mile 30. The riparian and in-stream conditions along the mainstem Sandy River is good to excellent, with much of the stream length protected in county, state and federal ownership as well as designated federal Wild and Scenic River and state scenic waterway.

Above Marmot Dam, the upper basin is divided into three large watersheds: the Salmon, Zigzag and upper Sandy Rivers. These river systems support at-risk wild runs of Lower Columbia River steelhead (federal Threatened species), cutthroat, coho, spring and fall chinook salmon. The Oregon State Department of Fish and Wildlife (ODFW) basin fish management plan emphasizes protection of these wild stocks, limiting stocking of hatchery anadromous fish below the dam, operating a trap to intercept hatchery fish at Marmot Dam, and allowing only catch and release sport fishing in these upper basin systems.

The upper 70-90% of these watersheds are managed by Mt. Hood National Forest. Most of these lands are in highly protected land allocations: wilderness, Wild and Scenic River, late successional reserves, visual/scenery along Highway 26 corridor, or as domestic water supplies for the cities of Sandy, Portland or Rhododendron. Land management on all federal lands (BLM and Forest Service) emphasizes recovery of at-risk fish stocks under the Northwest Forest Plan.

Riparian areas (an area containing an aquatic ecosystem and adjacent upland areas that directly affect it) are important to provide habitat for fish and wildlife. Riparian reserves (designated riparian areas) are established on federal lands within the range of the northern spotted owl. The canopy of these riparian reserves maintains low stream temperatures, provide LWD for both salmon rearing and refuge for wildlife. The Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. ACS objective # 2 states: " Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian dependent-species."

Watershed analysis was completed on the Salmon River in 1995, the Zigzag and the Upper Sandy in 1996. These analyses concluded that, in general, habitat for at risk fish on National Forest lands was properly functioning. A number of restoration opportunities were identified to improve aquatic ecosystems on National Forest lands which included road decommissioning, culvert replacement/fish passage, riparian silviculture, replacement of large woody debris (LWD), side channel restoration, and evaluation of in-stream nutrient supplementation through placement of fish carcasses. Most of these recommendations have been implemented or are in progress.

The watershed analyses identified that much of the historic highest quality habitat for anadromous fish was located in the lower reaches of the drainages on private lands. Almost 50% of the anadromous fish habitat on the Salmon River is located below the National Forest boundary. Most of the wide valley bottoms with unconstrained large river channels and tributary mouths (which contain much of the highly productive side and off channel habitats) are private holdings, predominately zoned for single family homes, with some commercial development and timber/agricultural zones. Development has impacted

both small and large stream systems. Stream channelization has resulted in the loss of side channels. Development within and adjacent to the floodplain has removed the riparian vegetation and the source LWD.

The area is now experiencing a rapid population increase. During the last decade, there was a 41% increase in housing units; there are approximately 7,060 residents in the area currently. Growth is expected to continue as the area becomes more popular as a recreation destination and "bedroom community" for Portland. Water quality, riparian and instream habitat are increasingly at risk with continuing development.

Stream restoration habitat have been a major practice in the last 5-8 years in Mt. Hood National Forest. Workshops and training sessions have been provided to implement stream and watershed restoration designs (NR-20, 1998). Identifying stream types, studying the stream morphology, and accessing the surrounding stream conditions have been useful for stream restoration efforts for fish habitat improvement and enhancement designs (Rosgen, 1996). Presently, LWD and boulders structures have been used as spur designs to increase and improve habitat conditions for salmon and other aquatic species (Feduk, 1997). Incorporated with these designs, riparian reserves were highly considered, which are an important component to continually supply wood in stream systems (Robison and Beschta, 1990). Slaney and Zaldokas (1997) have stated that identifying, assessing, and designing are the most important steps in fish habitat restoration plans.

Unfortunately, some of these private land owners, particularly near streams, are not aware that their land is ideal habitat or potential habitat for fish and wildlife protection, restoration, and enhancement. Thom and Talabere (1998) have identified potential instream restoration sites for steelhead, spring chinook, and coho salmon in the Sandy River basins. These are the first 2-2.5 miles of Alder, Wildcat, Boulder, and Hackett Creek. "Most of these streams in the lower watershed would benefit from riparian enhancements designed to protect the streams banks, encourage conifer re-establishments, and filter agriculture area; and stormwater runoff" (Thom and Talabere, 1998). Thus, a management program is needed to identify these land; inform the private land owners; educate them on potential ways to protect, restore, and enhance fish and wildlife habitat; and help work with them to manage their land for beneficial uses for both the land owner and fish and wildlife species.

b. Rationale and significance to Regional Programs

The Mt. Hood National Forest follows the Northwest National Forest Plan. To further strengthen the National Forest management practices, the Mt. Hood National Forest, Zigzag Ranger District uses the Aquatic Conservation Strategy objectives as a guideline for better management practices. Along with the ACS objectives, the matrix indicators of NMFS is another guideline to indicate any potential impact, changes, degradation to the watershed's present conditions that may influence aquatic species habitat. Most of the ACS objectives and NMFS matrix indicators are detailed factors associated to the 1994 Fish and Wildlife Program. However, private lands are not subject to ACS objectives, NMFS matrix indicators nor Fish and Wildlife Program objectives. As a result, isolated blocks of lands reduce connectivity of Riparian Reserves, a key element to ACS objectives. This limits any instream restoration for habitat improvement or passage for salmon or other aquatic species in areas that these blocks of land are located. By restoring or improving these isolated blocks of land, it may become stepping stone habitat for mobile late-seral, and refugia areas for mobile and non-mobile species linked to late-seral forests (WA, 1996).

c. Relationships to other projects

Presently, the Zigzag Ranger District have several on-going projects for watershed improvements and habitat restorations. Due to the 1996 flood, instream restoration designs and plans are continually implemented. Revegetating riparian areas to prevent soil erosions and restore the connectivity of the watersheds are used as basic management practices in the National Forest. An outreach program to the public and young students is Cascade Streamwatch. This educates the public and young students the importance of the watershed and its ecosystem to the development and perpetuation of salmon stocks. All of these programs involves partnerships with federal, state, and private organizations such as BLM, ODFW, Wofltree, Inc. (non-profit organization), USFW, USGS, and NW Service Academy (Americorp).

These programs has objectives focusing on watershed improvements and habitat restorations enhance fish and wildlife stocks and access.

Another partnership program that involves and focuses on the interests of private land owners is the RiverKeeper. It provides consulting advises for land owners that approaches Forest Service personnel to assist in restoring and enhancing their land for fish habitat. This partnership program involves private land owners, private organizations, and volunteers to participate in improving and restoring the watersheds and habitat for the benefit of fish and wildlife species.

During 1996, 0.5 mile of restored coho and steelhead habitat was completed, riparian willow planting was accomplished, in-channel work was done, and modified dispersed sites were improved. The success of the program during its first year generated more interest from other private land owners. Construction of a new meandering channel at the golf course was finished and two new ponds was created and completed in summer 1998. Future activities will focus on Revegetating the side channel to improve wetland and riparian habitat for fish passage. These projects were completed by volunteers provided by the Northwest Service Academy. In order to continue this program and progress in its efforts, this partnership program still needs more funding to continue its restoration efforts.

d. Project history (for ongoing projects)

N/A (new project)

e. Proposal objectives

Since the present RiverKeeper program is based on interested private land owners who request the Forest Service personnel to assist in improving their land, this offspring project proposes to take the active role in continuing the RiverKeeper program. It would search and identify areas on private land that are potential habitat for fish and wildlife. Then, inform and educate these private landowners some suggestions for fish and wildlife restoration and enhancements. Most of the goals and objectives of the RiverKeeper will remain the same but this offspring program is oriented towards a more productive role.

1. The main goal of this project is to restore fish stocks and habitat by improving, protecting, and enhancing the quality of riparian reserves and restoring instream habitat within the watershed adjacent to National Forest.
2. This project aims to acquire the approval and involve the private land owners to participate in restoring the fish stocks of the lower Columbia River subbasin. Thus, bring forth the connectivity of riparian reserves.
3. In addition, this project intends to provide detailed design plans and technical on-the-ground assistance during project implementation.
4. Monitoring and evaluating these projects will be conducted to determine any significant improvements or other needed designs.

f. Methods

Identify Key Habitats:

The first stage of the project will be identifying key habitats in private lands that can sustain fish stocks. The ODFW's guide to restoration site selection in the Sandy River basin will be the initial guidelines to locate key habitat sites in private lands. Low elevation aerial photographs are available and will be used to identify and asses the site. All key habitats identified will be listed, evaluated, prioritized, located by GPS and mapped on Forest Service/BPA GIS systems.

Contact and Inform Land Owners:

Land owners will be contacted and informed about opportunities for fish and wildlife habitat improvements in their properties. Interested land owners will work with Forest Service Biologists to assess and evaluate their property using standard methodologies outlined by the U.S.

National Forest Watershed Restoration workshop proceedings (NR-20, 1998). The property owner will be offered assistance in project development, planning, designing, and implementation (including options for funding assistance).

An additional outreach program will consist of three public workshops offered 1/year, starting in 2000. The workshops will detail elements of streamside stewardship (BMP's for small landholders), watershed restoration techniques, and finally instream habitat improvement. The workshop will be planned and implemented by Forest Service biologists assisted by student interns (volunteers).

Plan, Design, and Implement:

At least three projects will be located and implemented each year. The planning and design will be based on methods outlined in the Stream and Watershed Restoration Design and Implementation Workshop guidelines (NR-20, 1998). All proposed ground disturbing activities will be analyzed by environmental assessments, and be processed through standard consultation with National Marine Fisheries Service.

Monitor and Evaluate Project Sites:

As part of project development, a monitoring plan will be prepared and implemented. Prior to and following project activities, base flow temperature regime, algal community assessment, water quality and macroinvertebrate samples will be taken. Hobo thermographs will be used to measure daily temperature changes at the project sites. Water quality parameters such as dissolved oxygen, pH, and turbidity will be measured by HACH field kits on a monthly basis. Macroinvertebrate sampling will be done at the same time as the water quality sampling. The population size, species diversity, and density of the macroinvertebrate and algal community samples and will be evaluated to assess the conditions of the stream. Yearly, point shot and aerial pictures of the project site will be used to evaluate any physical changes in the riparian reserves and instream restoration design. All data will be stored and maintained in Forest Service computers/files, incorporated in GIS. Annual progress reports will be prepared and a final report submitted with total accomplishments and monitoring results in September 2004.

g. Facilities and equipment

The RiverKeeper program has operated part-time out of Zigzag Ranger District (near Welches/Brightwood/Rhododendron, OR) and would continue to administered there. Office space, computers, vehicle and basic field equipment are available (currently utilized part-time by RiverKeeper personnel). The proposed budget includes estimates of costs for construction/restoration supplies and materials (geo-jute, plants, root-wods, logs) that would be offered as incentives in support of project implementation on a cost-share basis (up to $5,000 on 3 projects each year). Additionally, the budget also includes an estimated $5,000 that could be used as cost-share, an incentive on one or more larger-scale projects involving heavy equipment contracting.

h. Budget

A three year program of work is outlined that would expand the existing program from a limited part-time Forest Service outreach effort to an aggressive year-round basin restoration program. The annual cost includes salary for 1.75 FTE's for project administration/implementation, approximately 15 days for a 5 person NEPA IDT, and modest amount for supplies ($9,000) and construction ($5,000) that could be utilized as incentives on a 50/50 cost-share basis with the lanowner. The annual BPA project of $97,750 is directly leveraged by existing annual contributions by the Forest Service and other partners totalling $49,500 (34%) of total project costs). This does not factor in the major investments already made by the Forest Service in watershed rstroation increasing $15,000 in 1984 to annual investment of $30,000+ in 1996-1999.

Section 9. Key personnel

The RiverKeeper project would be staffed as follows:

Project Leader (Fish biologist GS-11): 20 days
Project Manager (GS-9 Fish Biologist/hydrologist) -outreach, planning and implementation: 260 days
Seasonal Crew (GS-5 Bio Tech): 130 days

These positions will be filled when funding is approved.

Section 10. Information/technology transfer

As previously described data from project mapping, project status and monitoring will be inputted to FS GIS and made available to BPA. The intent of the project is public information sharing, promoting good stewardship and the restoration of healthy aquatic ecosystems and watersheds. By September 2003, over 300 landowners and another 300+ interested public will have been directly contacted and provided the opportunity to learn more and participate in salmon recovery on their own property.

Congratulations!